

# LOW IMPACT HYDROPOWER INSTITUTE

34 Providence Street

Portland, ME 04103

Tel. (207) 773-8190 • Fax (206) 984-3086

[www.lowimpacthydro.org](http://www.lowimpacthydro.org)

## LOW IMPACT HYDROPOWER QUESTIONNAIRE

[Excerpted from Part VI, Section E of the Low Impact Hydropower Certification Program. Words in italics are defined in Part VI, Section C, and line-by-line instructions are available in Section D of the program, available on-line in PDF format at <http://www.lowimpacthydro.org>.

### E. LOW IMPACT HYDROPOWER QUESTIONNAIRE

<b>Background Information</b>	
1) Name of the <i>Facility</i> .	<b>Newfound Hydroelectric Project</b>
2) Applicant's name, contact information and relationship to the Facility. If the Applicant is not the Facility owner/operator, also provide the name and contact information for the Facility owner and operator.	<b>Newfound Hydroelectric Corporation (owner)</b> <b>31 Bristol Drive</b> <b>Boynton Beach, FL 33436</b> <b>Nathan Wechsler</b> <b>V: 561-736-5360</b> <a href="mailto:natwechsler@msn.com">natwechsler@msn.com</a> & <a href="mailto:sjh@essexhydro.com">sjh@essexhydro.com</a>
3) Location of Facility by river and state.	<b>Newfound River, Bristol, NH</b>
4) Installed capacity.	<b>1.5 MW</b>
5) Average annual generation.	<b>5.749 GWh</b>
6) Regulatory status.	<b>FERC Licensed (November 6, 1981)</b>

7) Reservoir volume and surface area measured at the high water mark in an average water year.	<b>Surface Area: 0.23 Acres Gross Reservoir Volume: 0.69 Acre-Feet Net Storage Capacity: 0 (run-of-river)</b>
8) Area occupied by non-reservoir facilities (e.g., dam, penstocks, powerhouse).	<b>Less than 2 Acres</b>
9) Number of acres inundated by the Facility.	<b>Approximately 1 Acre</b>
10) Number of acres contained in a 200-foot zone extending around entire impoundment.	<b>Approximately 1 acre</b>
11) Please attach a list of contacts in the relevant Resource Agencies and in non-governmental organizations that have been involved in Recommending conditions for your Facility.	<b>Please see Appendix 2</b>
12) Please attach a description of the Facility, its mode of operation (i.e., peaking/run of river) and a map of the Facility.	<b>Please see Appendix 3</b>
<p><b>Questions For “New” Facilities Only:</b></p> <p>If the Facility you are applying for is “new” i.e., an existing dam that added or increased power generation capacity after August of 1998 please answer the following questions to determine eligibility for the program</p>	
13) When was the dam associated with the Facility completed?	
14) When did the added or increased generation first generate electricity? If the added or increased generation is not yet operational, please answer question 18 as well.	
15) Did the added or increased power generation capacity require or include any new dam or other diversion structure?	
16) Did the added or increased capacity include or require a change in water flow through the facility that worsened conditions for fish, wildlife, or water quality, (for example, did operations change from run-of-river to peaking)?	

<p>17 (a) Was the existing dam recommended for removal or decommissioning by resource agencies, or recommended for removal or decommissioning by a broad representation of interested persons and organizations in the local and/or regional community prior to the added or increased capacity?</p> <p>(b) If you answered “yes” to question 17(a), the Facility is not eligible for certification, unless you can show that the added or increased capacity resulted in specific measures to improve fish, wildlife, or water quality protection at the existing dam. If such measures were a result, please explain.</p>		
<p>18 (a) If the increased or added generation is not yet operational, has the increased or added generation received regulatory authorization (e.g., approval by the Federal Energy Regulatory Commission)? If not, the facility is not eligible for consideration; and</p> <p>(b) Are there any pending appeals or litigation regarding that authorization? If so, the facility is not eligible for consideration.</p>		
<p><b>A. Flows</b></p>	<p><b>PASS</b></p>	<p><b>FAIL</b></p>
<p>1) Is the Facility in <i>Compliance with Resource Agency Recommendations</i> issued after December 31, 1986 regarding flow conditions for fish and wildlife protection, mitigation and enhancement (including in-stream flows, ramping and peaking rate conditions, and seasonal and episodic instream flow variations) for both the reach below the tailrace and all bypassed reaches?</p>	<p><b>YES (see Appendix A)</b></p>	
<p>2) If there is no flow condition recommended by any Resource Agency for the Facility, or if the recommendation was issued prior to January 1, 1987, is the Facility in Compliance with a flow release schedule, both below the tailrace and in all bypassed reaches, that at a minimum meets Aquatic Base Flow standards or “good” habitat flow standards calculated using the Montana-Tennant method?</p>	<p><b>N/A</b></p>	
<p>3) If the Facility is unable to meet the flow standards in A.2., has the Applicant demonstrated, and obtained a letter from the relevant Resource Agency confirming that demonstration, that the flow conditions at the Facility are appropriately</p>	<p><b>N/A</b></p>	

protective of fish, wildlife, and water quality?		
<b>B. Water Quality</b>	<b>PASS</b>	<b>FAIL</b>
1) Is the Facility either:  a) In Compliance with all conditions issued pursuant to a Clean Water Act Section 401 water quality certification issued for the Facility after December 31, 1986? Or  b) In Compliance with the quantitative water quality standards established by the state that support designated uses pursuant to the federal Clean Water Act in the Facility area and in the downstream reach?	<b>Yes (see Appendix B)</b>	
2) Is the Facility area or the downstream reach currently identified by the state as not meeting water quality standards (including narrative and numeric criteria and designated uses) pursuant to Section 303(d) of the Clean Water Act?	<b>No</b>	
3) If the answer to question B.2 is yes, has there been a determination that the Facility is not a cause of that violation?	<b>See Appendix B-1, B-2</b>	
<b>C. Fish Passage and Protection</b>	<b>PASS</b>	<b>FAIL</b>
1) Is the Facility in Compliance with <i>Mandatory Fish Passage Prescriptions</i> for upstream and downstream passage of anadromous and catadromous fish issued by Resource Agencies after December 31, 1986?	<b>Yes (see Appendix C-1, C-2)</b>	
2) Are there historic records of anadromous and/or catadromous fish movement through the Facility area, but anadromous and/or catadromous fish do not presently move through the Facility area ( <i>e.g.</i> , because passage is blocked at a downstream dam or the fish run is extinct)?  a) If the fish are extinct or extirpated from the Facility area or downstream reach, has the Applicant demonstrated that the extinction or extirpation was not due in whole or part to the Facility?	<b>N/A</b>	

<p>b) If a Resource Agency Recommended adoption of upstream and/or downstream fish passage measures at a specific future date, or when a triggering event occurs (such as completion of passage through a downstream obstruction or the completion of a specified process), has the Facility owner/operator made a legally enforceable commitment to provide such passage?</p>		
<p>3) If, since December 31, 1986:</p> <p>a) Resource Agencies have had the opportunity to issue, and considered issuing, a Mandatory Fish Passage Prescription for upstream and/or downstream passage of anadromous or catadromous fish (including delayed installation as described in C2a above), and</p> <p>b) The Resource Agencies declined to issue a Mandatory Fish Passage Prescription,</p> <p>c) Was a reason for the Resource Agencies' declining to issue a Mandatory Fish Passage Prescription one of the following: (1) the technological infeasibility of passage, (2) the absence of habitat upstream of the Facility due at least in part to inundation by the Facility impoundment, or (3) the anadromous or catadromous fish are no longer present in the Facility area and/or downstream reach due in whole or part to the presence of the Facility?</p>	<p>N/A</p>	
<p>4) If C3 was not applicable:</p> <p>a) Are upstream and downstream fish passage survival rates for anadromous and catadromous fish at the dam each documented at greater than 95% over 80% of the run using a generally accepted monitoring methodology? Or</p> <p>b) If the Facility is unable to meet the fish passage standards in 4.a., has the Applicant demonstrated, and obtained a letter from the US Fish and Wildlife Service or National Marine Fisheries Service confirming that demonstration, that the upstream and downstream fish passage measures (if any) at the Facility are appropriately protective of the fishery resource?</p>	<p>NA</p>	

5) Is the Facility in Compliance with Mandatory Fish Passage Prescriptions for upstream and/or downstream passage of <i>Riverine</i> fish?	<b>None prescribed.</b>	
6) Is the Facility in Compliance with Resource Agency Recommendations for Riverine, anadromous and catadromous fish entrainment protection, such as tailrace barriers?	<b>None prescribed.</b>	
<b>D. Watershed Protection</b>	<b>PASS</b>	<b>FAIL</b>
1 ) Is there a buffer zone dedicated for conservation purposes (to protect fish and wildlife habitat, water quality, aesthetics and/or low-impact recreation) extending 200 feet from the high water mark in an average water year around 50 - 100% of the impoundment, and for all of the undeveloped shoreline	<b>See Appendix D</b>	
2 ) Has the facility owner/operator established an approved watershed enhancement fund that: 1) could achieve within the project's watershed the ecological and recreational equivalent of land protection in D.1.,and 2) has the agreement of appropriate stakeholders and state and federal resource agencies?	<b>N/A</b>	
3 ) Has the facility owner/operator established through a settlement agreement with appropriate stakeholders and that has state and federal resource agencies agreement an appropriate shoreland buffer or equivalent watershed land protection plan for conservation purposes (to protect fish and wildlife habitat, water quality, aesthetics and/or low impact recreation)	<b>see Appendix D</b>	
4 ) Is the facility in compliance with both state and federal resource agencies recommendations in a license approved shoreland management plan regarding protection, mitigation or enhancement of shorelands surrounding the project.	<b>N/A</b>	
<b>E. Threatened and Endangered Species Protection</b>	<b>PASS</b>	<b>FAIL</b>
1) Are threatened or endangered species listed under state or federal Endangered Species Acts present in the Facility area and/or downstream reach?	<b>No (see Appendix E)</b>	
2) If a recovery plan has been adopted for the threatened or endangered species pursuant to Section 4(f) of the Endangered Species Act or similar state provision,	<b>N/A</b>	

<p>is the Facility in Compliance with all recommendations in the plan relevant to the Facility?</p>		
<p>3) If the Facility has received authority to incidentally <i>Take</i> a listed species through:          (i) Having a relevant agency complete consultation pursuant to ESA Section 7 resulting in a biological opinion, a habitat recovery plan, and/or (if needed) an incidental Take statement; (ii) Obtaining an incidental Take permit pursuant to ESA Section 10; or (iii) For species listed by a state and not by the federal government, obtaining authority pursuant to similar state procedures; is the Facility in Compliance with conditions pursuant to that authority?</p>	<p>N/A</p>	
<p>4) If a biological opinion applicable to the Facility for the threatened or endangered species has been issued, can the Applicant demonstrate that:</p> <p>a) The biological opinion was accompanied by a FERC license or exemption or a habitat conservation plan? Or</p> <p>b) The biological opinion was issued pursuant to or consistent with a recovery plan for the endangered or threatened species? Or</p> <p>c) There is no recovery plan for the threatened or endangered species under active development by the relevant Resource Agency? Or</p> <p>d) The recovery plan under active development will have no material effect on the Facility's operations?</p>	<p>N/A</p>	
<p>5) If E.2. and E.3. are not applicable, has the Applicant demonstrated that the Facility and Facility operations do not negatively affect listed species?</p>	<p>N/A</p>	
<p><b>F. Cultural Resource Protection</b></p>	<p>PASS</p>	<p>FAIL</p>
<p>1) If FERC-regulated, is the Facility in Compliance with all requirements regarding Cultural Resource protection, mitigation or enhancement included in the FERC license or exemption?</p>	<p><b>YES (see Appendix F-1)</b></p>	

2) If not FERC-regulated, does the Facility owner/operator have in place (and is in Compliance with) a plan for the protection, mitigation or enhancement of impacts to Cultural Resources approved by the relevant state or federal agency or <i>Native American Tribe</i> , or a letter from a senior officer of the relevant agency or Tribe that no plan is needed because Cultural Resources are not negatively affected by the Facility?	N/A	
<b>G. Recreation</b>	<b>PASS</b>	<b>FAIL</b>
1) If FERC-regulated, is the Facility in Compliance with the recreational access, accommodation (including recreational flow releases) and facilities conditions in its FERC license or exemption?	N/A (See Appendix G)	
2) If not FERC-regulated, does the Facility provide recreational access, accommodation (including recreational flow releases) and facilities, as Recommended by Resource Agencies or other agencies responsible for recreation?	N/A	
3) Does the Facility allow access to the reservoir and downstream reaches without fees or charges?	Yes	
<b>H. Facilities Recommended for Removal</b>	<b>PASS</b>	<b>FAIL</b>
1) Is there a Resource Agency Recommendation for removal of the dam associated with the Facility?	NO	



# **Appendix 1**

## **Newfound Hydro**

### **Ownership/Regulatory Status**

The Newfound hydroelectric project (the Newfound project”) presently is owned and operated by the Newfound Hydroelectric Company, a New Hampshire limited partnership. The history of development, ownership and operation of the Newfound project is described below.

The Newfound project was originally constructed in 1927 by Public Service Company of New Hampshire (“PSNH”), and was operated to provide electricity to PSNH’s customers in the Town of Bristol. In 1948, PSNH no longer wanted to continue operating the plant because it was cheaper for them to produce electricity by burning oil and coal. Henry Harris and his brother Russell Harris purchased the Newfound project in May of 1948 and used the property to store furniture for Harris Brothers, their growing furniture supply business.

In 1973, the Arab world stopped selling oil to the United States in response to the U.S. decision to re-supply the Israeli military during the Yom Kippur war. Skyrocketing oil prices ignited a renewed interest in developing sources of domestic energy supply and the Newfound project was purchased by the Newfound Hydroelectric Company in May of 1981.

On November 6, 1981 the Federal Energy Regulatory Commission (“FERC”) issued a minor license to the Newfound Hydroelectric Company (Licensee) of Bristol, New Hampshire, under part I of the Federal Power Act, for a period of fifty years (FERC 3107, see Appendix 1-1). The project works consist of: (1) a diversion weir located adjacent to New Hampshire Route 3A in Bristol, New Hampshire; (2) a new 800-footlong water conveyance facility, leading to (3) a new powerhouse located approximately 800 feet downstream of the Water St. Bridge; and (4) appurtenant works. The installed capacity of the project is 1,500 kW.

Comments in support of the Newfound project’s application for a minor license were filed by the U.S. Fish and Wildlife Service, The New Hampshire Fish and Game Department, The New Hampshire Historical

Preservation Office, The New Hampshire Water Supply and Pollution Control Commission, and The New Hampshire Water Supply and Pollution Control Commission (see Appendix 1-1). No adverse comments were received during the application process.

The project has operated successfully since initial power was generated in 1927.

## **Appendix 2**

### **Newfound Hydro**

#### **Listing of Authorities/Agencies Contacted**

#### **Federal**

U.S. Fish and Wildlife Service  
P.O. Box 1518  
Concord, NH 03301

Director, Northeast Region  
National Marine Fisheries – NOAA  
7 Pleasant Street  
Gloucester, MA 01930

Earl Wade  
National Park Service  
143 S. 3rd Street  
Philadelphia, PA 19106

**State**

Carol Henderson  
Fish & Wildlife Ecologist  
New Hampshire Fish and Game Department  
11 Hazen Drive  
Concord, NH 03301

New Hampshire Historical Preservation Office  
Department of Resources and Economic Development  
Historic Preservation Office  
P.O. Box 856  
Concord, NH 03301

New Hampshire Water Supply and Pollution Control Commission  
Hazen Drive  
P.O. Box 95  
Concord, NH 03301

New Hampshire Water Resources Board  
37 Pleasant Street  
Concord, NH 03301

New Hampshire Wetlands Board  
37 Pleasant Street  
Concord, NH 03301

## **Appendix 3**

### **Newfound Hydro**

#### **Project Location and Operations**

The Newfound Hydroelectric project (“the project”) is located in downtown Bristol, New Hampshire approximately 800 feet downstream from the crossing of Water Street over the Newfound River. (see Exhibit 3-

1) The area in the vicinity of the dam is urban in character and typical of an old New England manufacturing city.

The land uses along the north side of the river to the east of the project's diversion weir are predominantly industrial and to the west they are commercial. On the south side of the river the land usage to the east of the powerhouse is predominantly urban residential with commercial uses lying to the west. Along both banks above and below the dam the vegetation consists of planted ornamentals and those types typical of disturbed ground.

The facility is operated as a fully automated run of river project. At times of non-generation, the project is licensed to release an outflow equal to an instantaneous minimum of 5 cfs. When inflows fall below 5 cfs, inflow is equal to outflow.

Construction of the Newfound hydroelectric project was completed in 1927. Project works consist of: (a) a diversion weir surmounted by wooden flashboards, totaling 10 feet in height; (b) a 0.23-acre reservoir with a storage capacity of 0.69 acre-feet; (c) a concrete intake channel; (d) a powerhouse containing two generating units (870 kW and 617 kW); a 6-foot diameter wooden penstock 420 feet long; (f) a 30-foot wide tailrace extending 175 feet to the confluence of the Newfound and Pemigewasset Rivers; (g) a 160-foot-long underground cable from the powerhouse to an existing pole of the power purchaser, Public Service Company of New Hampshire; and (h) appurtenant works.

## **Appendix A**

### **Newfound Hydro**

#### **Description of Project flows**

##### **River flow History**

The Newfound hydroelectric project ("the Newfound Project") is located on the Newfound River, 175 feet above its confluence with the Pemigewasset River in Bristol, New Hampshire. The Newfound River begins at the outlet of Newfound Lake and drops rapidly through the town of

Bristol, passing over several hydroelectric dams before reaching the Pemigewasset. Major tributaries of the Newfound River (via Newfound Lake) are the Fowler River and the Cockermouth River.

The Newfound Project is operated as a run-of-river facility. Outflows from the project equal inflows on an instantaneous basis. The licensee is responsible for maintaining a continuous minimum flow of 5 cubic feet per second or the inflow to the project's diversion weir, whichever is less, for the protection and enhancement of aquatic resources in the river. (see Appendix 1-1)

The Newfound Project discharges into the Pemigewasset River, seven miles above its confluence with the Winnepesaukee River. Historical river flows in the Pemigewasset River within the project area are 151 cfs.

## **Appendix B**

### **Newfound Hydro**

#### **Water Quality**

The Newfound hydroelectric project received a 401 Water Quality Certificate (WQC) from the State of New Hampshire Water Supply and Pollution Control Commission (see Appendix 1-1). The WQC was issued in 1981 as part of the project's application to the Federal Energy Regulatory Commission for a minor license for the continued operation of the project.

On April 27, 2011 a request was sent to Ted Walsh, Surface Water Monitoring Coordinator for the New Hampshire Department of Environmental Services for confirmation that there are no pre-existing impairments on the Newfound River (see Appendix B-1). Due to the lack of a more recent water quality certificate issued by the New Hampshire Department of Environmental Services ("NHDES"), Newfound Hydroelectric Company is currently working with NHDES to develop and implement a testing program to confirm that the Newfound project is not causing or contributing to violations of state water quality standards (see Appendix B-2). Testing will begin in 2011 and all required testing is

expected to be completed by September 30, 2011. The results will be forwarded to the Low Impact Hydropower Institute upon receipt.

## **Appendix C**

### **Newfound Hydro**

#### **Fish Passage and Protection**

The Newfound hydroelectric project is not currently required by state or federal resource agencies to construct or maintain upstream and/or downstream fish passage facilities. During the project's application for a minor license for the continued operation of the project, the U.S. Fish and Wildlife Service determined that the Newfound River does not provide suitable habitat for anadromous fish (see Appendix 1-1).

Requests have been submitted to Carol Henderson at the New Hampshire Fish and Game Department (see Appendix C-1) and John Warner at the U.S. Fish and Wildlife Service (see Appendix C-2) for confirmation that the Project is operating within the terms of its license.

## **Appendix D**

### **Newfound Hydro**

#### **Description of Watershed Protection**

As was previously mentioned, the Newfound hydroelectric project is located in downtown Bristol, New Hampshire, approximately 800 feet downstream from the crossing of Water Street over the Newfound River. The Newfound project is located in the floodplain of the United States Army

Corps of Engineers (USACE) Franklin Falls Flood Control Dam. The watershed area formed by the Newfound hydroelectric project's diversion weir creates a 0.23-acre reservoir with a storage capacity of 0.69 acre-feet. The project is operated as a run of river facility with a net storage capacity of zero. A 200-foot boundary zone extending around the impoundment is bordered by mill buildings, shopping malls and homes (see Appendix 3-1).

The project is located in the Merrimack River Basin approximately seven miles above the confluence of the Pemigewasset and the Winnepesaukee Rivers. The generally south flowing Merrimack River is New England's fifth largest river. The basin is 134 miles in length and 68 miles wide. Total drainage area is 5015 square miles. The two principal headwater streams are the Pemigewasset River (accounting for 20% of the entire drainage) and the Winnepesaukee River. These streams join in Franklin, New Hampshire to form the Merrimack. The tributary with the second largest sub-basin is the Contoocook.

Given the very small impoundment area of the Project there is little need nor opportunity for watershed protection in the area of the project. All of the land in the immediate vicinity of the project is urban in character, highly developed and privately owned. The flows below The Newfound Hydroelectric facility ("the Newfound Facility") have minimal effect on shoreline erosion due to the predominantly granite and gravel substrates in the tailrace areas. There has been minimal colonization of exposed shorelines by emergent plants within the 200-foot boundary area due to the inhospitable urban landscape. The species that do exist consist of generally old-field primary successional species that are indicative of an area that has previously been cut over and disturbed.

Layout and landscaping of the powerhouse grounds was designed in a manner to minimize visual impact and mitigate the project's impact on the surrounding shoreline. As a condition of issuance, the FERC License requires compliance with any terms and conditions that the Federal or State fish and wildlife agencies have determined appropriate to prevent loss of, or damage to, fish and wildlife resources. There have been no deficiencies noted by any agency with jurisdiction for the plant.

## **Appendix E**

### **Newfound Hydro**

#### **Description of Threatened and Endangered Species Protection**

On May 5, 2011 a request was submitted to the New Hampshire Natural Heritage Bureau for a comprehensive list of federally listed threatened or endangered species that occur in the vicinity of the Newfound hydroelectric project. The New Hampshire Natural Heritage Bureau confirmed via its project impact report dated May 5, 2011 that no federally listed threatened or endangered species which occur in the vicinity of the Newfound hydroelectric project other than occasional transient bald eagles (see Appendix E-1).

As a condition of issuance, the Newfound hydro project's FERC license requires compliance with any terms and conditions that the Federal or State Fish and Wildlife agencies have determined appropriate to prevent loss of, or damage to, fish and wildlife resources. The New Hampshire Fish and Game Department did not request the FERC to require a cumulative impact study for this facility. The Newfound hydroelectric project ("the project") operates within FERC and Federal or State Fish and Wildlife Agency guidelines. The project's license is subject to termination if the facility is found to be out of compliance. There have been no deficiencies noted by any agency with jurisdiction for the facility.

## **Appendix F**

### **Newfound Hydro**

#### **Cultural Resources**

No known sites of historic or archaeological significance exist within the project boundary. A request was submitted on May 5th, 2011 to the New Hampshire Division of Historical Resources ("NHDHR") for confirmation



that there are no known historic properties affected by the project (see Appendix F-1). The response from NHDR will be forwarded to the Low Impact Hydropower Institute upon receipt.

## **Appendix G**

### **Newfound Hydro**

#### **Recreation**

Recreational access, accommodation and facilities conditions were not included as a part of the FERC license issued on November 6, 1981 (see Appendix 1-1). The steep terrain within the project boundary provides for little recreational access at the project. Minimal hiking occurs within the project boundary and access is provided free of charge.